WE CLAIM:

1. A packaged micromirror assembly, comprising:

a mirror element;

a plurality of driver elements responsive to electrical signal elements for orientating the mirror element;

a body encasing at least one driver element and to which the mirror element is attached; and

a sensor, disposed beneath the mirror element, for detecting the orientation of the mirror.

2. The assembly of claim 1, wherein the sensor has electrical leads extending from the body for presenting an indication of the orientation of the mirror.

3. The assembly of claim 2, further comprising:

a memory for storing calibration values of the sensor.

4. The assembly of claim 1, wherein the sensor comprises:

at least one light source for illuminating an underside of the mirror surface; and

at least one detector for detecting light imparted by the at least one light source and reflected from the underside of the mirror surface;

wherein the combination of the at least one light source and at least one detector provide a plurality of reflection paths over which the intensity of reflected light is measured.

5. The assembly of claim 1, wherein the sensor comprises:

a light source for illuminating an underside of the mirror surface; and

a plurality of detectors, angularly arranged under the mirror surface, for detecting the intensity of light from the light source after reflection from the underside of the mirror surface.

6. The assembly of claim 5, wherein the light source comprises:

a light-emitting diode; and

an aperture directed at a center point of the underside of the mirror surface, through which light from the light-emitting diode passes.

7. The assembly of claim 1, wherein the sensor comprises:

a plurality of light sources, angularly arranged under the mirror surface, each for illuminating an underside of the mirror surface; and

a detector, located coaxially with the mirror surface for detecting the intensity of light from each of the plurality of light sources after reflection from the underside of the mirror surface.

8. An electronic system, comprising:

a data source, for generating data to be communicated to a receiver; and

a transmitter optical module, comprising:

a light source, coupled to the data source, for generating a modulated directed light beam; and

a packaged micromirror assembly for directing the directed light beam at the receiver, comprising:

a mirror element formed of a single piece of crystalline material, the mirror element having a frame, a mirror surface, and a plurality of hinges;

at least one permanent magnet attached to the mirror element;

a plurality of coil drivers, in proximity to the at least one permanent magnet, for orienting the mirror element;

a body encasing the plurality of coil drivers, and to which the mirror element is attached; and

a sensor, disposed between the body and the mirror element, for detecting the orientation of the mirror.

9. The system of claim 8, wherein the data source comprises a computer.

10. The system of claim 8, wherein the light source comprises a laser.

11. The system of claim 8, wherein the packaged micromirror assembly further comprises:

control circuitry, coupled to the sensor and to the driver coils, for applying a signal to the driver coils responsive to the detected orientation of the mirror.

12. The system of claim 11, wherein the sensor has electrical leads extending from the body to the control circuitry, for presenting an indication of the orientation of the mirror.

13. The system of claim 8, further comprising:

a memory for storing calibration values of the sensor.

14. The system of claim 8, wherein the sensor comprises:

at least one light source for illuminating an underside of the mirror surface; and

at least one detector for detecting light imparted by the at least one light source and reflected from the underside of the mirror surface;

wherein the combination of the at least one light source and at least one detector provide a plurality of reflection paths over which the intensity of reflected light is measured.

15. The system of claim 8, wherein the sensor comprises:

a light source for illuminating an underside of the mirror surface; and

a plurality of detectors, angularly arranged under the mirror surface, for detecting the intensity of light from the light source after reflection from the underside of the mirror surface.

16. The system of claim 15, wherein the light source comprises:

a light-emitting diode; and

an aperture directed at a center point of the underside of the mirror surface, through which light from the light-emitting diode passes.

17. The system of claim 8, wherein the sensor comprises:

a plurality of light sources, angularly arranged under the mirror surface, each for illuminating an underside of the mirror surface; and

a detector, located coaxially with the mirror surface for detecting the intensity of light from each of the plurality of light sources after reflection from the underside of the mirror surface.

18. A method of transmitting data signals, comprising:

generating a modulated light beam;

orienting a micromirror to reflect the modulated light beam from an upper surface of the micromirror to a receiver;

directing light at an underside of the micromirror;

detecting light reflected from the underside of the micromirror at a plurality of locations arranged at a plurality of angles; and

determining the orientation of the micromirror from the detected reflected light at the plurality of locations.

19. The method of claim 18, wherein the orienting step comprises:

selectively energizing a plurality of coil drivers, each in proximity to at least one permanent magnet attached to the underside of the micromirror.

20. The method of claim 19, wherein the orienting step orients the micromirror to a null position;

and further comprising:

detecting the relative light intensity at each of the plurality of locations with the micromirror at the null position; and

storing, in a memory, calibration values corresponding to the micromirror at the null position.

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